

**Siuslaw River Fire
Emergency Fire Rehabilitation Plan
and
Environmental Assessment
1792A-EA-03-04**

Background

Brief Siuslaw River Fire History and Location within the Landscape : The Siuslaw River Fire started on Saturday August 17, 2002. When reported it was actively burning on the lower timbered slopes just east of the Siuslaw River on Bureau of Land Management land in T18S, R08W, Section 27. The fire was pushed east and southeast by dry winds from the northwest. Due to steepness of slope, high winds and rolling debris, the fire posed an extreme threat to fire fighter safety. The safest alternative for control was to back off and use ridge tops, roads, creeks and hand and dozer lines for control. Back firing was used to reinforce control lines. Approximately 526 acres of BLM ownership burned from the fire within the east half of T18S, R08W, Section 27, the northern half of T18S, R08W, Section 35, and the southwest corner of T18S, R08W, Section 25 within the Upper Siuslaw and Wolf Creek watersheds. Of the 526 acres of bureau lands burned within the fire boundary, 126 acres of BLM land realized 90-100% stand mortality. The Siuslaw River fire was declared controlled at the close of 2002 fire season on November 8, 2002. The total fire area included forest lands within T18S, R08W, Sections 25, 26, 27, 35, and 36. The final fire size was 860 acres.

The Siuslaw River Fire occurred within Late Successional Reserve (LSR) R0267 in the southwestern portion of the Oregon Coast Range Physiographic Province. LSR R0267 occupies 175,280 acres of federal land primarily within the Coast Range Province and extends into a portion of the Umpqua River Basin of the Southwest Oregon Province.

Wildfire Suppression Rehabilitation

Some emergency repair or rehabilitation of impacts to the road system and dozer trails within and adjacent to the fire have been accomplished. The primary goals were to restore adequate drainage to the road network, hand lines, and dozer lines (that were used in fire suppression efforts) to minimize erosion and potential impacts to water quality due to direct fire suppression efforts. This includes road blocking (closure), waterbar installation, pullback and scattering of road berms, and dozer trail rehabilitation and closure.

Purpose and Need

The purpose of the Siuslaw River Emergency Fire Rehabilitation Plan (EFRP) is to minimize off-site sedimentation to waterways and successfully rehabilitate this area of Late Successional Reserve (LSR) habitat to a diverse forest community while precluding the dominance of brush species and invasion of noxious weeds. Without rehabilitation efforts the fire impacted area would be taken over by the prolific brush species typically associated with these south facing slopes in the Oregon Coast Range.

Conformance to Planning

The proposed action and alternatives are consistent with LSR objectives identified in the Eugene District Resource Management Plan (RMP/EIS), Watershed Analysis, and the Late Successional Reserve Assessment RO267/RO268. This EA is tiered to these planning documents and they are incorporated by reference. Consistency with the goals and objectives of LSR were considered guiding principals in this rehabilitation plan as was consistency with the BLM Manual Handbook H-1742-1 Emergency Fire Rehabilitation Handbook, July 1999. Late Successional Reserves are managed to protect and enhance conditions of late-successional and old growth forest ecosystems, which serve as habitat for late-successional and old growth related species including the northern spotted owl. These reserves are designed to maintain a functional, interacting, late-successional and old growth forest ecosystem.

Issues Identified by the Interdisciplinary Team

Issues identified by the IDT included worker safety, re-establishment of conifer vegetation, minimizing erosion and sedimentation, maintaining LSR vegetative diversity in the long term, and timing of treatments. More specifically, issues were as follows:

- Public and worker safety from danger trees along roads and in burn units proposed for planting
- Minimizing erosion and sedimentation to streams (threatened coho) and risk to a downstream culvert
- Road stability
- Brush competition & the need to re-establish trees quickly (planting) to benefit LSR objectives
- Potential invasion by noxious weeds in disturbed areas and native seeding for erosion control
- Timing of treatments to avoid disturbances to T & E species

Recreation and Visual Resource Management (VRM) were not issues for this EFRP. Nothing is proposed that would have an effect on VRM and no recreation restrictions such as a public access closure is proposed. Recreation and VRM will not be discussed further in analysis of the proposed action and alternatives.

Proposed Action Alternative

The IDT objectives were to design rehabilitation measures consistent with the Resource Management Plan (RMP/EIS), Watershed Analysis, the LSR Assessment RO267/RO268, and OR-OSHA requirements for worker safety. The IDT developed design features within the Proposed Action Alternative that were considered to be the most reasonable of what could realistically be accomplished to rehabilitate the various areas of the burn given the issues and constraints (EFRP timeframes, environmental, OSHA guideline, etc).

Using aerial photography, the burned area was subdivided into proposed treatment units based on varying intensities of burn and age classes (see the attached map). **A areas** are composed of managed plantations and young timber with high mortality; **B areas** are young timber stands which underburned with moderate severity; and **C areas** are mature and old growth stands which underburned with low severity.

High Severity Burn Areas (A-1 through A-8)

The high severity burn areas included managed young stands with birth dates ranging from 1988 to 1950 (14 years old to 52 years old). Past management in these stands have included tree seeding, planting, replanting, brush treatments and pre-commercial thinning to maintain tree survival and promote tree growth. These high severity burn areas include approximately 113 acres proposed for planting with multiple species (Douglas-fir, western hemlock, and western redcedar). Harsh site conditions and TPCC limitations are expected to reduce tree survival considerably, resulting in variable spacing of the established stand.

High severity burn area A-4 (less than 2 acres) and A-8 (approximately 5 acres) would not be planted. The spatial pattern of the surviving trees within this area of the burn was conducive to LSR objectives.

Moderate Severity Burn Areas (B-1 through B-5)

The moderate severity burn areas included highly managed young stands with birth dates ranging from 1983 to 1950 (19 years old to 52 years old). Past management in these stands have included tree seeding, planting, brush treatments and pre-commercial thinning to maintain tree survival and promote tree growth. These moderate severity burn areas include approximately 280 acres of the burn. No planting is proposed in these moderate severity burn areas unless additional tree mortality is experienced in the overstory of these stands.

Low Severity Burn Areas (C-1 through C-6)

The low severity burn areas include naturally seeded old-growth stands with birth dates ranging from approximately 1810 to 1820. A few of these stands also have a second younger cohort of mature trees present ranging in birth dates from 1920-1940. No treatments have been recorded for these stands. These low severity burn areas include approximately 133 acres. No planting is proposed in these low severity burn areas.

Forest Operations Inventory (FOI) information was used to characterize these burned areas and is available for each unit in the Siuslaw Fire file located at the Eugene District Office, Siuslaw Resource Area.

Design Features of the Proposed Action – Alternative 1

Planting

To re-establish a conifer overstory and attempt to meet LSR objectives in the long term, all “A units”, approximately 110 acres, would be planted as is except for those designated as A-4 and A-8 (see map). No additional site preparation would be required. A mix of

Douglas fir, hemlock, and cedar as available would be planted to provide adequate survival of the stands in the long term. Planting densities would range up to 400 trees per acre dependent upon site conditions and availability of trees for replanting. Harsh site conditions and TPCC limitations are expected to reduce tree survival considerably, eventually resulting in variable spacing of the established stands. Planting would occur this winter (FY 2003).

Special habitat features such as open rocky and grassy areas would be identified (flagged) and would be avoided during planting.

Natural Revegetation

All Area "B units" and Area "C units", approximately 416 acres, would be allowed to recover and revegetate naturally and conifers to seed in over time. Area B would be monitored for additional mortality not evident at this point in time and portions may be underplanted in the second winter if necessary to re-establish a mixed LSR stand of Douglas fir, hemlock, and cedar. A-4 and A-8 would be allowed to recover naturally to encourage additional diversity in LSR stand characteristics.

Grass Seeding

Native perennial grass seed has been grown by the Eugene BLM and would be used on larger areas of bare earth remaining after fire suppression rehabilitation. Such areas include dozer lines, hand lines, and closed, ripped roads. The seed would be spread with hand tools. Other areas that were only burned (not disturbed) should recover quickly without seeding.

Areas to be seeded

	Area	Acres	Pounds
Section 25			
Road 18-8-36.1	12' x 200'	0.06	1.7
Hand line	4' x 2400'	0.22	6.6
Section 27			
Dozer line/road 18-8-25	12' x 1600'	0.44	13.2
Dozer line down hill	15' x 2600'	0.90	26.8
Section 35			
Road 18-8-35.2	14' x 1600'	0.51	15.4
Dozer line	15' x 1600'	0.55	16.5
Hand line	4' x 1600'	0.15	4.4

Emergency backup handlines outside the fire perimeter such as in Big Canyon Creek and secondary handlines would also be seeded with native grass. Some short trail segments on the east side of the fire (within Area C2) were not treated as part of the suppression rehabilitation plan. These would be waterbarred and small woody debris and brush would be scattered on exposed soils to minimize erosion.

Monitoring (All Areas)

To determine rehabilitation effectiveness of implemented treatments and natural revegetation in untreated areas, post treatment monitoring would occur for three subsequent growing seasons (FY2003, FY2004, FY2005). This would help determine if additional treatments are necessary and if the EFRP objectives are being met. For example, Area B is expected to show additional mortality over the next year and may require additional evaluation for treatment (underplanting) in some locations. Noxious weed invasion would be monitored for a three year period as well.

Boulder Creek

Boulder Creek would be monitored to evaluate movement and distribution of sediment from the south facing slopes of the burn. Plugging is a concern for a downstream fish passage culvert replaced several years ago. The 18-8-35.2 road, which was opened during fire suppression, would be rehabilitated, closed, and seeded with native grass.

Contour falling

To protect soils from detachment and to trap potential sediment on steep slopes of Area A-1, contour falling of approximately 20 trees would occur, as soon as possible after plan approval, but no later than Feb. 28, 2003. Monitor site for effectiveness of this treatment.

To slow erosion on the eastern-most firetrail, adjacent to Area B-2, some trees would be dropped on the contour to minimize soil displacement on steeper sections of this firetrail.

Public Safety - Danger Trees

To protect human health and safety, danger trees were removed along all roads, within the boundaries of the fire, during the extended attack of the fire. After field review by the State of Oregon's Occupational Safety and Health Administration (OSHA) personnel, it is expected that additional danger trees will continue to be identified in the rehabilitation of this fire damaged area. For planning purposes, and to facilitate safe treatment (planting) of burned areas, approximately 30 fire weakened trees are anticipated to be felled as safety hazards adjacent to roads within the burned area.

Public Safety - Road Stability & Repair

Road No. 18-8-25 (2.87 miles) would require ditch cleaning of debris accumulated from snag felling and slashing along the road shoulder. Road shoulders washed out due to mop-up activities would be repaired. Road grading would be required.

Road No. 18-8-26 (1.25 miles) would require road grading only.

An excavator would be used to obliterate the cat line that extends beyond the end of Rd# 18-8-25 and to rehabilitate and close the 18-8-35.2 road (approximately .3 miles) adjacent to Boulder Creek.

All other BLM roads within the fire were not adversely affected sufficiently to warrant additional maintenance.

The placement of warning signs would be coordinated with Lane County for some locations along the Siuslaw access road and Wolf Creek road.

Survey Corner Preservation

In Area A-1, to preserve the exposed, ridgetop location of the east ¼ corner of Sec. 27, fall 3 fire killed witness trees leaving high stumps. These high stumps would be capped with sheet metal to slow decomposition of these stumps until replacement witness trees have time to grow around this brass cap ¼ section corner.

No Action Alternative

The No Action Alternative would leave all areas of the Siuslaw wildfire to rehabilitate naturally over the long term. No treatments such as contour felling, or native grass seeding would be implemented to mitigate erosion and sedimentation concerns. No planting would occur in an effort to re-establish a conifer overstory in severely burned units, but stands would be allowed to recover and re-vegetate through slower natural re-seeding and succession to some conifer over the long term. Alder and brush would be expected to dominate in “A Areas”. To provide for public safety, danger trees would be cut as necessary and the road system would be repaired and maintained as in the Proposed Action Alternative. Monitoring would be used to evaluate revegetation.

Modified Planting Alternative

This alternative would modify the proposed action to include a change in planting spacing to introduce additional planting density variability in units A-5 and A-7 (42 acres). Planting densities up to 222 trees per acre was suggested on these sites where young dead standing timber may not be a safety concern for replanting if necessary in the second year. Follow up monitoring would determine the need for replanting in these two stands. These plantations would need to be reevaluated by OSHA for hazardous conditions and may not be available for replanting in the second year. The establishment of additional trees would be more difficult due to second year brush competition.

Other Alternatives Considered

A limited variety of treatments or combinations of treatments were proposed and discussed by the Interdisciplinary Team (IDT) for areas (A, B, C) of the fire. Some of the alternative treatments proposed for certain units were not considered feasible or practicable based on factors such as OR-OSHA provided guidelines for safety, RMP consistency, IDT discussion, past monitoring results, or environmental factors such as harsh site conditions. For example, aerial seeding was considered, but not in a detailed analysis, because monitoring the 1999 Austa Fire has indicated very poor conifer survival on south facing slopes of the burned area and the site has required replanting with conifers to attempt to meet LSR objectives in the long term. A small acreage salvage operation was also considered for areas A-1 and A-3/A-6 but was dropped from detailed analysis as a result of field discussions with OSHA that standards and guidelines for LSR might not be possible to achieve considering unknown worker hazards and operational requirements during harvest operations in these steep burn areas.

Affected Environment

Soils

Most soils within the fire area formed in material weathered from interbedded sandstone and siltstone. Digger soils occur on narrow ridges and steep side slopes that have layers of hard sandstone. The most extensive SCS map unit on southerly aspects in all three BLM sections is a complex of Digger gravelly loam and rock outcrop. Slopes are dissected and very steep, ranging from 60 to 85 percent. Typically this map unit is described as 65 percent Digger soil, 15 percent rock outcrop, and 20 percent other inclusion soils. Here the extent of rock outcrop tends to be greater, particularly on upper slopes. Rock outcrop consists of exposures of hard sandstone that commonly occurs as short nearly vertical escarpments. Digger is moderately deep (average 37 inches) with moderately rapid permeability. Runoff is rapid and the hazard of water erosion is high. These are droughty sites with very low plant available water and substantial brush competition for seedlings. Digger soils are sensitive to productivity losses from burning. Organic matter in the A horizon is 3 to 5 percent. Changes in nitrogen availability following fire may be a function of soil temperature. Coarse gravelly soils have less insulating air space than finer textures and conduct heat more readily to a greater depth. Potential for volatilization of N is very high if soil is heated to over 200 C. Generally, on steep ravel-prone slopes a fire hot enough to destroy the litter will probably also heat the soil enough to destroy inter-particle bonding (Barnett, R-6 Soils Technical Report, 1989). Dry ravel and some flow erosion are expected in areas of high burn severity. All of Treatment Areas A2, A3, A4 and A6 are Digger soils with rock outcrop. The east half of A1 and the north end of A5 are as well.

North facing slopes in both Section 27 and 25 are mapped as a complex of three soils, Preacher loam (35 %), Bohannon gravelly loam (30 %), and Slickrock gravelly loam (20 %). Slopes range from 50 to 75 percent. The Bohannon soil is mainly on the upper part of downtrending ridges and headwalls. The Slickrock soil is on small slump benches and toe slopes. The Preacher soil is in the intermediate positions. Preacher is deep (average 58 inches) with moderate permeability. Bohannon is moderately deep (average 24 inches) with moderately rapid permeability. Slickrock is deep (average 55 inches) with moderate permeability. Runoff is rapid and the hazard of water erosion is high for all three soils. The deeper soils, Preacher and Slickrock, have moderate to high amounts of plant available water. Bohannon's water supplying capacity for plants is low. Treatment Area A7 is primarily this complex of soils.

Preacher soils occur in the east lobe of Treatment Area 5 where slopes are gradual, less than 25 percent.

Klickitat stony loam occurs in the west half of Treatment Area A1. Slopes range from 50 to 75 percent. These soils are deep (average 50 inches) with moderate permeability. Coarse content is typically about 30% in the surface soil increasing to as high as 60% with depth. Runoff is rapid and the hazard of water erosion is high. Water supplying capacity is very low to low. Brushy plants limit natural regeneration of Douglas fir. Droughtiness caused by coarse fragments in the profile and south-facing slopes decreases seedling survival.

Blachly silty clay loam occurs in the northwest corner of Treatment Area A7. Slopes are less than 50 percent. These soils are deep (average 60 inches) with moderately slow permeability. Runoff is rapid and the hazard of water erosion is high. Plant available water is high.

Timber-Production Capability Classification (TPCC)

Some of the areas proposed for planting have inclusions of fragile soils of marginal site quality. The west side of Treatment Area A1 (approximately 6 acres) and three acres within Treatment Area A2 have been withdrawn from the District's commercial timber base due to excessively steep slopes with shallow soils that are prone to slides and ravel. Treatment Areas A3, A4, A6, the east side of A1, the bulk of A2, and the north end of A7 have reforestation limitations due to a combination of light and moisture competition from brush and hardwoods, as well as the steep slopes with rock outcrop. All of Treatment Area A8 and the south end of A7 have minimal reforestation limitations.

Areas of high burn severity are generally characterized by complete consumption of ground and canopy fuels with white or gray ash under conifers and black ash in canopy gaps. The higher burn severity created localized water repellant conditions while removing overstory vegetation and organic duff and litter. These are the source areas for increased soil erosion and runoff affecting water quality. Decreased long-term site productivity occurs in these areas as well. Areas of moderate burn severity are generally characterized by partial to complete consumption of canopy cover with discontinuous organic matter still recognizable. Gray to black ash occurs under canopies of conifers and brush with some localized water repellency.

Areas of low burn severity are generally characterized by scorching of surface organics with canopy fuels mostly present and green. Duff and litter are still recognizable and are effective ground cover.

Watersheds

The Siuslaw burn occurred on the divide between the Wolf Creek Watershed and the Siuslaw Watershed. The burn originated in the Siuslaw Watershed (Esmo-Whitt subwatershed) and burned east over the watershed divide into the western most portion of the Wolf Creek Watershed.

Climate and Moisture Regime

The Siuslaw burn area has a maritime climate characterized by mild temperatures with prolonged cloudy, overcast periods, wet winters, relatively dry summers, and a long frost free growing season. Temperatures are relatively mild with narrow diurnal fluctuations. Occasional periods of below freezing conditions do occur. Most precipitation is in the form of rain, although snow does occur occasionally.

Rainfall amounts vary but average approximately 80 inches per year with the majority of the rainfall occurring from October to April. Although rainfall amounts would be considered high, the intensities per hour are generally low. Winter storms come off the Pacific Ocean and are often accompanied by high south to southwesterly winds. Summers are warm and dry with little or no rain during the months of July and August. Mild north to northwesterly winds are common in summer.

High potential evapotranspiration and low precipitation during warm summers may produce moisture deficits where soil and bedrock have low waterholding capacities. Moisture deficits can be pronounced in the southern LSR, R0267 because soils are generally thinner, higher in rock fragments, and bedrock tends to be only slightly permeable to impermeable. Throughout the LSR, stands on ridges and exposed south facing slopes with thin, rocky soils can develop substantial plant moisture stress in late-summer. This description is typical of much of the BLM ownership within the Siuslaw burn area.

Long Term Forest Succession

Long term forest succession will depend on several factors including : disturbance type and intensity, disturbance frequency, seed source availability, and local site conditions. Typical vegetation succession following an intense fire would be the expected resprouting and development of a herbaceous and brush vegetation layer (within approximately 2 years) accompanied by a gradual in-seeding of red alder, Douglas-fir, western hemlock, western redcedar, bigleaf maple, white oak, and other minor tree species that have seed sources within the area. Natural re-seeding is expected to be heavier near the edges of the burn area adjacent to seed sources.

Germination and establishment of red alder can occur rapidly on exposed mineral soil and is expected to occur more rapid in some areas within the burn than other tree species due to its fast growth rate, and ability to out-compete brush establishment. Red Alder is often associated with high disturbance burn areas because of these traits. Re-sprouting of hardwoods such as bigleaf maple, white oak, chinquapin oak and madrone is also expected from surviving existing root systems.

Establishment of Douglas-fir across the burn area is expected to be highly variable due to varying site attributes across the burn area. Douglas-fir is expected to become established in higher densities in areas of exposed mineral soils with drier plant associations. However, moisture stress due to south facing slopes and shallow soils, and poor light conditions in areas of early brush and/or hardwood establishment may prevent or greatly slow the establishment and growth of Douglas-fir throughout portions of the burn area. Western hemlock and western redcedar are more shade tolerant than Douglas-fir and can become established and grow in areas of lower light conditions. Western redcedar is a slower growing species that prefers moist to wet soil conditions found on the lower slopes and north and east aspect areas.

Fire Regime and Landscape Pattern

The characteristic fire regime in the Oregon Coast Range was one of infrequent high severity fires with more than 200 years between burns and with considerable spatial variability associated with the estimate (Agee, 1993). The Siuslaw burn area lies within the Southern Interior Disturbance area defined in the LSR Assessment. In this area fire occurs in low to moderate frequencies, variable in size, with moderate to high severity.

The expected, resulting landscape pattern from this fire regime would be variable size (small to giant) patches, with some patches developing into late seral, and some patches experiencing more than one non-stand replacing disturbance (variable distribution of remnant trees and stands). Because of the many factors affecting fire behavior, the pattern of vegetation across the landscape after fire can be complex with numerous unburned patches forming a diverse mosaic. (LSR Assessment R0267, R0268, June 1997).

Hydrology

The Siuslaw River Fire Project Area is located entirely in the Wolf Creek and Upper Siuslaw River Watersheds (5th fields). Approximately 53 % of the fire occurred in the Lower Wolf Creek 6th field Subwatershed. The remainder of the fire occurred in the Upper Siuslaw River/Whitaker Creek 6th field Subwatershed. While the fire was fairly evenly distributed in area between the two Watersheds, fire intensity was much more severe and damaging in the Wolf Creek Watershed. Overstory mortality is estimated at about 60 % of the fire-damaged area in the Wolf Creek Watershed while it is estimated at about 25 % of the fire-damaged area in the Upper Siuslaw River Watershed. Both areas also experienced moderate to high intensity ground fire in most of the fire-damaged area.

The Siuslaw River (7th order drainage) is south and west of the project area. Wolf Creek (6th order drainage) is south and east of the project area. Big Canyon Creek (3rd order drainage) is north of the project area. An unnamed 3rd order drainage lies east of the project area. Most of the streams in the western half of the project area drain south to southwest to the Siuslaw River. Most of the streams in the eastern half of the project area drain south to southeast to Wolf Creek. A few streams in the northwest corner of the fire area drain north to Big Canyon Creek.

This area varies in elevation from 315' to 1435'. Most of this area is in the lowland and rain-dominated precipitation zones of the Coast Range that are not usually subject to rain-on-snow events. The topography varies from relatively gentle slopes near the Siuslaw River and Wolf Creek to very steep slopes that exceed 100 %. Most of the topography in this area is moderately steep to very steep.

Soils within the project area are predominately in the Digger/Rock Complex (45 %), Preacher-Bohannon-Slickrock Complex (29 %), Bohannon (12 %), and Meda (7 %) soil series. These soils are in Hydrologic Soil Groups B (40 %) and C (60 %). Group B soils are moderately deep or deep, moderately well drained or well-drained soils that have moderately fine texture to moderately coarse texture. They have moderate infiltration rates when wet. These soils have a moderate runoff and erosion potential. Group C soils have a slow infiltration rate when wet. They consist of soils that have a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. They have a high runoff and erosion potential.

There are numerous streams within the fire area. Fire damage varied across the landscape. Site-specific damage and stream information is presented by smaller drainage

basins in the Stream information sheet (Appendix 1). The hydrology map can be referred to for drainage basin locations.

The closest filed water rights to the project area are in Wolf Creek and the Siuslaw River for the protection of instream flows related to anadromous and resident fish rearing and supporting aquatic life and recreation.

Special Status and Survey & Manage Plants

Only one unit was surveyed in the fire area prior to the fire. A young plantation of 26 acres was surveyed in section 35. *Silene campanulata* ssp. *glandulosa* was found in an open rocky area on the border with the adjacent old growth stand. This species is on the Eugene District Review List. It is more common further south, but is near its northern limit in this area. Some herbaceous rare plants may be in the areas not surveyed, may have survived the fire, and will resprout the following spring from underground portions. Most likely is tall bugbane, *Cimicifuga elata*, a Bureau Sensitive plant. The fire may have consumed some populations of Special Status or Survey and Manage lichens or bryophytes. Lichens and bryophytes survived in the unburned portions, and in the canopy of old growth that had only underburned. The lichen *Usnea longissima* was found in old growth canopy during reconnaissance on September 24, 2002, in section 35 NW ¼ SE 1/16. This lichen is Survey and Manage Category F, and does not require protection. Other lichen or bryophyte species may have similarly survived the fire.

Plant Communities

The area is mostly Douglas-fir forest, with lesser amounts of western hemlock and western red cedar. Hardwood trees include big-leaf maple, red alder, madrone, chinquapin and cascara. Much of the area supports abundant shrub cover characteristic of moist forests, with salal, vine maple, salmonberry, dwarf Oregon grape, evergreen huckleberry and thimbleberry. Madrone, manzanita (*Arctostaphylos columbiana*), tobacco brush (*Ceanothus velutinus*), whipplevine (*Whipplea modesta*) and coyote brush (*Baccharis pilularis*) are characteristic of drier areas. Rock outcrops and rocky soils on south slopes have Oregon white oak, goldback fern (*Pentagramma triangularis*) and Harford's oniongrass (*Melica harfordii*). Post fire vegetation recovery should be quick; many shrubs and hardwoods (madrone, maple and oak) as well as bracken and sword fern, were already resprouting on September 24. Early-successional species that occur in the area and may spread in burned areas include native species such as pearly everlasting (*Anaphalis margaritacea*), tarweed (*Madia sativa*), and coyote brush (*Baccharis pilularis*). Introduced weedy species found along roadsides and likely to spread include cat's ear (*Hypochaeris radicata*), foxglove (*Digitalis purpurea*) and colonial bentgrass (*Agrostis capillaris*) among others.

Noxious Weeds

Small amounts of noxious weeds were found on roadsides. Post fire monitoring will be necessary. Treatments may be implemented at a later date if monitoring shows that they are necessary. Scotch broom was found in section 35, in the gravel stockpile and along the 7 mile tie road. Other noxious weed species that were found scattered along roads include Himalayan blackberry, evergreen blackberry, and bull thistle.

Cultural Resources

Cultural Resource Surveys: One cultural resource survey covering 70 acres was conducted in the NE³ Section 27, T. 18S, R. 8W., W.M. during November, 1986 in support of a proposed 1988 timber sale. No cultural values were located. No cultural surveys have been conducted on the remaining fire-affected area. No additional surveys will be conducted on BLM administered lands within the Siuslaw River Fire EFRP area. The Siuslaw River Fire EFRP area is located within the Coast Range physiographic province and falls under the purview of Appendix D of the Protocol for Managing Cultural Resources on Lands Administered by the Bureau of Land Management in Oregon between the Bureau of Land Management in Oregon and the Oregon State Historic Preservation Office.

Cultural Resource Values: No known cultural values are present on BLM administered lands within the Siuslaw River EFRP area. The nearest recorded cultural value was located on private property in sec. 16, T. 18S., R. 8W., W.M. on the south side of the Siuslaw River. This cultural feature, a plank tree, no longer exists.

Fisheries

Several live streams (see hydrology section) are found in the burn area on both BLM administered and Roseburg Forest Products Inc. lands. Boulder Creek, a tributary of Wolf Creek, in T.18S., R.8W., Section 35 (in the fire zone) has been used by coho salmon for spawning and rearing since the removal of a migration barrier culvert in 1995. The barrier culvert was replaced with a fish friendly pipe designed to pass 100-year flood events, but not designed to current protocols related to stream simulation. The location of the replacement was in the "C-Line" or 18-8-35 road at 250 to 290 stream feet. Coho salmon found in Boulder and Wolf Creeks are listed as threatened by the National Marine Fisheries Service. All ages of cutthroat trout were identified throughout Boulder Creek prior to the barrier culvert removal. Wolf Creek, a tributary of the Siuslaw River, has populations of anadromous and resident salmonid species that include chinook and coho salmon, and steelhead and cutthroat trout. Many non-salmonid fish species reside in Wolf Creek near the confluence of Boulder Creek. From the mouth of Wolf Creek to the confluence of Boulder Creek (~3500 stream feet) exceptional spawning and rearing habitat have been identified for use by salmonid and lamprey species.

The steep headwater areas of Boulder Creek, located on private lands in section 26, were clear-cut logged between 1990-1995 and have provided large amounts of spawning gravels to the lower stream reaches, to date. A good amount of large woody debris, largely cull logs from past BLM and private logging activities, has been documented within the flood plain in the upper reaches of Boulder Creek below the steep headwall zone. Because of the steep slopes, shallow soils and complete burn of vegetation in the steep headwater areas during the 2002 fire, a steady supply of sand, gravel and boulders to lower stream reaches is assured in the coming seasons.

The revegetated road 18-8-35.2, originating from BLM stockpile 09-55, was re-opened to the North along the east side of Boulder Creek for fire suppression purposes during the 2002 Siuslaw Fire. The upper end of this road encroaches on the stream channel for

several hundred feet. Several wide vehicle “turn-a-rounds” were created during the fire by bulldozing soil, brush, and trees off to the side of the old road. Although most were created on the side opposite the stream (to the east), one turn-a-round was built by pushing unwanted debris over the bank toward the stream channel.

Wildlife

Threatened and Endangered Species

The Bureau lands involved in this fire are designated Late Successional Reserve (LSR RO267) and Critical Habitat for both the northern spotted owl (OR-52) and marbled murrelet (OR-04-i). These federal lands are comprised of Douglas fir/western hemlock forest of varying seral stages (from 15 year-old plantations to old-growth forest).

Four historic spotted owl activity centers are located within the provincial home range of 1.5 miles from the burned areas. None of the site centers were burned, but approximately 135 acres of nesting/foraging habitat within these home ranges were impacted by low intensity fire. Because of curtailed spotted owl surveys in recent years, current records of spotted owls utilizing these areas are not available. Surveys conducted in the early to mid 1990s have resulted in documentation of spotted owl foraging activity within the burned areas

Numerous surveys for marbled murrelets have been conducted in and around the burn area. Surveyors have documented abundant murrelet activity in this area, particularly within the old-growth stands. As with spotted owls, 135 acres of suitable murrelet nesting habitat were impacted by cooler, low intensity burns.

Although occasional wintering eagles have been recorded along the Siuslaw River, no bald eagle nesting has been documented in the burn. However, trees adequate for nesting and perching did, and continue to exist in the area.

This area does not contain suitable habitat for any other terrestrial species listed or proposed under the Endangered Species Act.

Other Wildlife

A list of other wildlife species expected to occur within this area can be found in The Eugene District’s Resource Management Plan (RMP). Habitat for species preferring old-growth was subjected to cooler burns (areas C1-C6) than younger stands within areas A1-A8 and B1-B5.

Environmental Consequences of Alternative 1 - Proposed Action

Critical elements

There would be no adverse impacts from the proposed action to regional or local air quality, water quality, prime or unique farmlands, cultural resources, wetlands/riparian zones, floodplains, areas of critical environmental concern, environmental justice, native

American religious concerns, threatened or endangered species, hazardous or solid waste, wild and scenic rivers or wilderness. Water quality, riparian zones, and the stream system of the threatened coho salmon are expected to benefit from the proposed action. The proposed action is expected to benefit LSR habitat in the long term.

Vegetation

Tree planting would increase the chances of early re-establishment of a forested condition, especially near the center of large burn areas where the distance to a natural seed source is greater. The variable site conditions present within the burn area along with the inability to do follow up reforestation planting and vegetation maintenance treatments in support of an initial planting effort may contribute to areas of variable stocking densities within the burned areas as harsh site conditions (i.e. steep rocky areas with marginal soils and competing vegetation) reduce the initial planting densities over time.

In addition to tree planting, some natural re-seeding and tree establishment of both hardwoods and conifers would occur from adjacent seed sources that survived the fire along with re-sprouting of hardwoods, and herbaceous and brush species. Higher levels of tree stocking (hardwoods and conifers) are anticipated in these areas.

Hydrology & Soils

The removal of approximately 30 hazard trees would have a neutral effect on water resources. The hazard trees are likely to be roadside trees. There is a high probability that most would not be in close proximity to streams or wetlands. It is anticipated that all of the trees would be left on site and not yarded. The potential for erosion or sedimentation from hazard tree falling is extremely low.

The contour falling of approximately 20 trees in Area A-1 would potentially reduce soil movement in this area by trapping sediment behind the cut stems. This could reduce sediment delivery to the two channels located below this area. The contour falling of some trees on the eastern-most fire trail in Area B-2 could reduce soil movement and reduce sediment delivery to Drainage 5.

The proposed road stability and repair of B.L.M. roads 18-8-25 and 18-8-26 is likely to reduce the risk of road failure. The road segments proposed for repair are predominately located on or near ridgetops. There are no stream crossings on these road segments and the risk of sedimentation from ditch cleaning and grading is low. Cleaning the ditchlines and grading these roads would restore the designed functionality of these roads and lessen the risk of failure. Repairing the road shoulders washed out during mop-up activities would reduce over-steepened shoulders and areas of instability and help prevent slope movement. Reducing the potential of failure would reduce the risk of sediment delivery to downslope streams from the road system.

Grass seeding of dozer lines, hand lines, and closed ripped roads is expected to have a beneficial effect in reducing erosion, and possibly sedimentation, particularly after the first growing season.

The obliteration of the cat line at the end of B.L.M. road 18-8-25 would be beneficial in that it would reduce compaction on about 1 acre of land in the Upper Siuslaw Watershed.

The rehabilitation of B.L.M. road 18-8-35.2 would be beneficial in that it would reduce compaction on about one-half to three-quarters of an acre of land in the Wolf Creek Watershed. The pullback of road fill that is stream adjacent to Drainage 1 would reduce the risk of erosion and sedimentation.

The reduction in road/trail compaction from this action would be very small on a watershed basis but would contribute to a net compaction reduction in terms of cumulative effects in the watersheds.

Planting the “A units” with mixed conifer species; particularly in Areas A2, A3, A5, and A7; would improve the chances of coniferous large woody debris recruitment along these drainages in the future. Natural regeneration in these areas of high overstory mortality could result in brush and hardwood dominated stands. Planting is not likely to provide much immediate relief from erosion and sedimentation on the bare slopes but would help to stabilize these sites in the long term.

No large scale seeding is being proposed. Soil displacement is expected from areas of high burn severity. Post fire monitoring (Amaranthus and Trappe, 1992) of erosion from individual storms indicated that most surface erosion happens with the initial large storm event following wildfire when the readily movable topsoil is available. As organic matter is largely contained in topsoil, these early losses also constitute the greatest share of the productivity losses. Studies from Coast Range prescribed burns have shown that overall the greatest volume of soil is moved by gravity, not water, and that nearly all raveling movement occurs within the first year or sooner (Bennett 1982). Although large quantities of soil would be moved by raveling, the material is usually deposited downslope. Only the soil that is within several meters of channels can enter streams. Extensive ravel is anticipated in the A Areas given the very steep slopes and total loss of vegetative cover, resulting in a net movement of soil from upper convex slopes to lower concave slope or stream channel positions. Undisturbed soils in the Coast Range have an exceptionally high capacity to conduct water and can accommodate intense rainfall with no sustained overland flow (Yee and Harr, 1977), but soils post fire tend to be less able to accept water from big precipitation events. Sheet erosion and rilling is to be expected, especially on steep lower slopes in the ravel cones that collect there. This is due to the extent of rock outcrop, extreme slopes, possibly water repellent soils, reduced evapotranspiration due to tree death, and the fact that south slopes are also exposed to wind-driven rain, and receive more rainfall (Neal et al., 1965).

Soil exposure is expected to decline quickly as scattered herbaceous plants become established after fall rains begin. In the Austa Fire of 1999, adequate vegetative cover was established within 2 growing seasons to help stabilize soil and prevent on-or-off site soil erosion effects.

Topography is particularly severe, making erosion control of fire trails difficult. Waterbars will only be effective for a limited time because they quickly fill up. Sowing native grass on these highly erosive trails would prevent water from concentrating and check chronic erosion.

Contour felling would stabilize soils in two locations. In Area A1 this would check surface soil movement and minimize associated productivity loss. In Area C2 the activity will lessen the likelihood of sediment delivery.

Scalping of individual tree planting spots would reduce the extent of water repellant conditions on those acres.

Tillage of the road adjacent to Boulder Creek (18-8-35.2) would restore infiltration and hasten vegetative recovery, thereby reducing the potential for sediment additions.

Timber-Production Capability Classification (TPCC)

Some of the areas proposed for planting have inclusions of fragile soils of marginal site quality. The west side of Treatment Area A1 (approximately 6 acres) and three acres within Treatment Area A2 have been withdrawn from the District's commercial timber base due to excessively steep slopes with shallow soils that are prone to slides and ravel. Treatment Areas A3, A4, A6, the east side of A1, the bulk of A2, and the north end of A7 have reforestation limitations due to a combination of light and moisture competition from brush and hardwoods, as well as the steep slopes with rock outcrop. All of Treatment Area A8 and the south end of A7 have minimal reforestation limitations. Areas with TPCC limitations will likely result in mortality of some conifers and contribute to variable spacing of the surviving seedlings over time.

Botany

There may be direct effects from planting on possible surviving Special Status vascular plants, such as *Cimicifuga elata*, due to ground disturbance. These effects are not likely, however, as the area disturbed in planting is relatively small. Planting would provide an indirect, long-term beneficial effect to Special Status and Survey & Manage plants that occur in mature forests. Planting would help mitigate prior timber harvest as well as the effects of this fire by speeding the return of larger contiguous blocks of late-successional forest habitat.

Planting may also have a negative long-term, indirect effect to some species where a conifer canopy may develop that would not otherwise. Under natural succession, the time it takes to develop a conifer canopy on the drier, rocky sites may be greater than fire return intervals, so that these areas would remain open. Planting could cause the shading of species that require these open areas, such as the grasses, Oregon white oak and *Silene campanulata* ssp. *glandulosa* found in the fire area. Although it is possible that planted conifers would not survive in these drier, rocky areas regardless, open rocky areas will be identified and not planted. Small, open grassy areas with rock outcrops and sometimes white oak occur in unit A-1, A-6 and A-7, and in the northwest corners of both units C-2 and B-1. To provide habitat diversity, not all of the forest areas would be planted. Mid-successional forest stands under natural succession may provide additional habitats not found in either managed (planted) stands or late successional stands. Small areas of conifer mortality in the B and C units and unit A-4 will provide unmanaged mid-successional habitat gaps.

Contour falling may affect surviving Special Status Plants through direct disturbance, but any effect is unlikely. Road and culvert work in the existing road prisms would have no effect to Special Status or Survey & Manage plants, as the road prism is not likely habitat for these species.

Native grass seeding should help check erosion on bare earth and occupy sites that non-native weeds may otherwise occupy. However, the grass to be used (blue wildrye, *Elymus glaucus*) is not extremely aggressive, and is unlikely to fill sites for many years to the exclusion of other species. Blue wildrye is commonly found in relatively small, scattered tufts along roadsides in the Siuslaw Watershed.

Grass seeding would have no direct effect on Special Status or Survey and Manage Plants, as seeding is proposed only in highly disturbed areas that are not likely habitat. Grass seeding should also help prevent erosion and restore soil structure, facilitating development of native plant communities, and providing an indirect beneficial effect for Special Status Plants.

Cultural Resources

Proposed mitigation center around planting of the deforested area, and seeding and waterbaring of firetrails. These proposals would pose no threat to undiscovered cultural values.

Wildlife

Rehabilitation efforts, including seeding, danger tree felling and contour felling for erosion control, are not expected to negatively affect wildlife occurring in the vicinity of the burn. These tasks would occur during the winter and would be complete prior to March 1, 2003. Because this work would be accomplished prior to the reproductive seasons for most terrestrial species, disturbance to wildlife during this sensitive time would be avoided.

Rehabilitation efforts are expected to benefit wildlife and their habitat in the short and long term. Contour falling of selected snags would aid in preventing erosion. Seeding would mitigate erosion potential and inhibit spread of noxious weeds, as would tree planting.

As discussed earlier, old-growth and mature habitat involved in the fire was subjected to cooler, low intensity burns. This resulted in reduction or elimination of herbs, shrubs and some understory trees in scattered areas. Trees that have experienced mortality, will contribute to snag and woody debris levels within the affected stands.

In the short term (during the next three to five years) the resulting mosaic is expected to enhance opportunities for species that utilize edges, snags and down woody debris. Species requiring or preferring older seral stages would still be able to utilize most of this area, although they initially may be at more risk from predation. Within five years, shrub and other understory vegetation would begin to provide improved cover that was destroyed during the fire.

The younger areas that received intense burning will provide early successional species with opportunities for foraging as well as nesting. Any snags that remain standing would provide excellent habitat for purple martins and western bluebirds.

Cumulative Effects of Alternative 1- Proposed Action

The proposed action would contribute to decreased levels of sediment input into the Wolf Creek and Siuslaw Watersheds in the short term. The long term potential for sediment input would also decrease with the gradual establishment of vegetation within the burn area.

Tree planting of conifers would contribute to the earlier establishment of a forested condition. Resulting conifer densities from tree planting would be reduced in some areas from the initial planting density due to competition from brush and hardwoods and harsh site conditions. Higher tree densities (both hardwoods and conifers) are expected near natural seed sources that survived the fire.

At the landscape scale (watershed and total LSR), these effects would be minimal due to the small size of the BLM fire rehabilitation area. The condition of the burn area would require periodic monitoring over time and possibly additional stabilization or rehabilitation measures to insure continued attainment of aquatic and upland resource objectives.

Attainment of Aquatic Conservation Strategy (ACS) Objectives

The Proposed Action would minimize soil erosion, soil productivity losses, and sedimentation, protecting water quality. The proposed action would minimize noxious and invasive weed infestation, maintain special habitat areas and diversity within the LSR, and benefit the re-establishment of the forest community in the long term.

Environmental Consequences of Alternative 2 - No Action

Vegetation

Long term forest succession would occur as previously described in the existing environment. Chances of successful early establishment of a forested stand condition would be less than with the proposed action. Lower initial tree densities would also likely occur with this alternative along with larger areas of non-stocking due to the harsh site conditions present, particularly near the center of the burned area where distance to seed sources is greater. Brush vegetation would persist in these larger openings until natural reseeding and seedling establishment occurs.

Soils

Due to the steep topography and exposed soil conditions present on the fire line tractor trails and hand fire trails, the potential for some soil displacement and potential for increased sediment input into the 1st and 2nd order streams from high intensity rain events would be greater with the no-action alternative until the herbaceous and brush vegetation is reestablished within the burn area.

Untreated fire trails would be subject to chronic erosion with the associated productivity loss on those acres. Active erosion and declining site productivity would continue in areas proposed for contour felling until vegetation becomes reestablished. Potential for sediment delivery to Boulder Creek and the stream near A2 would not be reduced. Conifer establishment in the proposed treatment areas within the first decade would be unlikely. This is due to the low site quality, droughtiness, and severity of burn effects.

Hydrology

The risk of road failure (roads 18-8-25 and 18-8-26) would be higher under this alternative than under the Proposed Action. The associated risk of roadside sediment reaching downslope stream channels would be higher under this alternative. This alternative would not reduce compaction through the decommissioning of the 18-8-35.2 road. There is the potential for a greater amount of erosion and sedimentation from fire trails, roads, and dozer lines under this alternative than the Proposed Action because the trails would not be seeded with grass. There is a slightly higher risk of erosion and sedimentation under this alternative versus the Proposed Action because of the lack of contour felling. The establishment of conifers along some of the drainages in the “A areas” might take much longer under this alternative. Future recruitment of coniferous large woody debris along these channels would be further delayed. The falling of hazard trees is expected to be identical to the Proposed Action so impacts would be the same.

Erosion and Site Productivity

Post fire monitoring (Amaranthus and Trappe, 1992) of erosion from individual storms indicated that most surface erosion happens with the initial large storm event following wildfire when the readily movable, burned topsoil is available. As organic matter is largely contained in topsoil, these early losses also constitute the greatest share of the productivity losses. Studies from Coast Range prescribed burns have shown that overall the greatest volume of soil is moved by gravity, not water and that nearly all raveling movement occurs within the first year or sooner (Bennett 1982). Although large quantities of soil would be moved by raveling, the material is usually deposited down slope. Only the soil that is within several meters of channels can enter streams. Ravel is expected to be extensive due to the steep slope (>65%), south aspect, and total loss of vegetative cover, resulting in a net movement of soil from upper convex slopes to lower concave slope or stream channel positions. Undisturbed coarse soils in the Coast range have an exceptionally high capacity to conduct water and can accommodate intense rainfall with no sustained overland flow (Yee and Harr, 1977). Here some sheet erosion and rilling is to be expected, especially on steep lower slopes in the ravel cones that collect there. This is due to the extent of rock outcrops, extreme slopes, possibly water repellent soils, and the fact that south slopes are also exposed to wind-driven rain, and receive more rainfall (Neal et al., 1965). Most of the rilling would probably occur during the first winter and for as long as three years. Bare soil exposure is expected to decline quickly as scattered herbaceous plants become established after the fall rains begin, but it is unlikely that cover will be enough to forestall the initial erosive losses.

Adequate desirable vegetation, primarily hardwood species, would recover within 2-3 years to help stabilize soil and prevent on or off site soil erosion effects. Re-colonization

of the site by alder would slowly build organic matter reserves back to pre-fire levels. Conifer reestablishment in the first decade would be unlikely given the initial low site quality and severity of the burn effects until other vegetation can rebuild organics to replace losses. Under the worst case scenario, high intensity winter storms (as forecast), hot dry summers, and if hot temperatures have killed a large proportion of on-site hardwoods then this alternative could lead to prolonged soil exposure and chronic erosion into the next decade.

Botany

There would be no immediate direct impacts to the existing forest vegetation. Long term impacts would be dramatic, as conifer reforestation of the area would be reduced and delayed. Alder and brush would occupy a large percentage of the area. Conifer reforestation would occur most near the fires edges where the conifer seed sources are greatest. Most of the brush (shrubs) and forbs will resprout next spring. Areas where the fire burned intensely may not resprout but will probably reseed in from neighboring less intensely burned and unburned areas. The areas of lower intensity burn will revegetate quickly from sprouting, roots and seeds. Within a few years shrub species would dominate, with conifer trees eventually coming in over the long term.

Weeds

Expected succession on the site would be initial colonization by native early seral species such as fireweed and grasses with a fair component of non-native species such as burnweed and foxglove. Nearby clear-cuts have a high percentage of non-native species and will be the source for these species. These weeds would remain in the system in significant quantities for three to ten years until woody species dominate the site. Once this occurs, weeds would be present in smaller quantities, not dropping out of the system until a closed canopy forest reestablished.

Special Status and Survey and Manage plants

Plants would come into the site if the successional stage and habitat conditions they needed occurred on the site and if seed or spores were available and dispersed onto the site. Direct effects to surviving plants would not occur under the No Action Alternative. Indirect long-term beneficial effects due to planting or seeding would likewise not occur.

Fisheries

Under a No-Action alternative, impacts would be similar to the Proposed Action, except that the potential for increased erosion may be greater from the burn area than would occur if active seeding and plant establishment is completed. Since the potential for erosion reaching the reaches where fish are present is highest prior to the establishment of vegetation, the benefit to fish from the Proposed Action versus the No-Action would depend on the ability of the Proposed Action to accelerate the establishment of stabilizing vegetation.

Wildlife

Because limited vegetation modification is proposed under the proposed alternative, impacts due to no action would be similar to those of that alternative. Under the “No

Action” alternative, the potential for erosion increases. The ability of this area to reforest and develop wildlife habitat is tied to soil quality and stability. Depending on subsequent level of erosion, the “No Action” could well result in retarded development of such habitat in areas of hotter burns.

Cumulative Effects of Alternative 2- No Action

The no-action alternative would leave a higher risk of increased levels of sediment input into the stream system within the Wolf Creek and Siuslaw Watersheds in the short term. The long term potential for sediment input would decrease over time with the gradual establishment of vegetation within the burn area. Long term forest succession would occur as previously described in the existing environment. The long term natural establishment of conifers within the burn area would occur over time on a much slower trajectory reflective of the varying site conditions present within the burn area. The resulting long term forest canopy structure would be expected to be much more open with lower densities and larger openings due to site conditions and limiting natural seed sources in some areas of the burn. Brush vegetation would persist in these larger openings until such time as natural reseedling and seedling establishment occurs. At the landscape scale (watershed and total LSR), these effects would be minimal due to the small size of the BLM fire rehab area. The condition of the burn area would require periodic monitoring over time and possibly additional stabilization or rehabilitation measures to insure continued attainment of aquatic and upland resource objectives.

Environmental Consequences of Alternative 3 – Modified Planting

Impacts of the Modified Planting Alternative are much the same as the Proposed Action Alternative except that approximately 42 acres would be planted at wider spacing to introduce additional diversity and stand characteristics over the long term in this LSR rehabilitation area. Should replanting be deemed necessary through monitoring in these two areas (A-5, A-7) the second year, successful establishment could be more difficult than the higher density first year planting of the Proposed Action. Replanting in these areas would be more subject to established brush competition.

Consultation and Coordination

Fisheries

Consultation on the Proposed Action for coho salmon is not required. The cutting and removal of hazard trees is covered by the Programmatic BA/BO.

Safety

The Oregon Occupational Safety & Health Division (OR-OSHA) was contacted by BLM regarding worker safety during proposed treatments within the burned area. OR-OSHA provided written guidance in a letter to BLM dated October 16, 2002.

Wildlife

No suitable habitat for any federally listed or proposed species would be altered as a result of the Proposed Action. Falling of snags for safety reasons would take place outside the nesting season for these species, so disturbance to them is not an issue.

Consequently the proposed action would have "No Effect" on any listed or proposed species known to occur in the vicinity and therefore consultation with the U.S. Fish and Wildlife Service is not required.

List of preparers

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PRELIMINARY FINDING OF NO SIGNIFICANT IMPACT (FONSI)
FOR THE SIUSLAW FIRE
EMERGENCY FIRE REHABILITATION PLAN
EA 1792A-EA-03-04

The Bureau of Land Management (BLM), Eugene District, Siuslaw Resource Area has analyzed a proposed action, a no action alternative, and considered other alternative treatments for accomplishment of emergency rehabilitation of burned BLM land in the Siuslaw Fire (N-897). This emergency rehabilitation is consistent with the Eugene District Resource Management Plan (RMP/EIS) as amended and Late Successional Reserve Assessment RO267/RO268. These documents may be reviewed at the Eugene District Office.

The design features identified in the Environmental Assessment (EA) would assure that no significant adverse impacts would occur to the human environment other than those already addressed in the Eugene District RMP/EIS. Only beneficial effects from the proposal are anticipated.

They are as follows:

- minimization of soil erosion (sedimentation)
- minimization of soil productivity losses
- re-establishment of the forest community
- maintenance of LSR diversity
- minimization of noxious and invasive weed infestation

On the basis of the information contained in the EA, and all other information available to me, it is my determination that none of the alternatives analyzed constitutes a major Federal action affecting the quality of the human environment. Therefore, a new Environmental Impact Statement (EIS) or supplement to the existing EIS is unnecessary and will not be prepared.

Stream Information Sheet

Drainage Basin # 1 – This is the most severely impacted area of the fire. Approximately 70 % of this drainage basin experienced over story mortality. The basin is 164 acres in size. More than 95% of the basin is within the fire area. Approximately half the basin is in Federal Ownership. The upper part of the drainage is private ownership characterized by steep to very steep slopes and headwall areas. The young reproduction stands and 40-60 year old stands in this area were severely impacted (over story and under story) by the fire. In addition, about 30-35 acres of 25-40 year-old BLM stands (areas A-3, A-4, A-6, portions of A-7) experienced a severe crown fire.

The riparian area is generally intact on Federal land with little ground fire damage evident within 50' (or greater) of the stream channel and virtually no over story damage over the stream channel. This riparian area is alder dominated. Up slope areas on Federal land vary from moderate to intense ground/overstory damage. The riparian in the younger stands on private land burned completely through. Up slope areas on private land were also severely impacted.

Soils are predominately Digger/Rock Complex, and Preacher-Bohannon-Slickrock Complex.

The main stream in this drainage is a 2nd order fish-bearing stream that drains south to Wolf Creek. Bank full width is 6'-12 ½' (most 7'-10'). Substrate is gravel/cobble with multiple sizes of boulders. Gradient varies from 3 % to 12 % on the lower reaches with most gradients greater than 8 %. The upper reaches are moderate to very steep gradient. The channel is moderately confined to confined in the lower reaches. The channel is generally confined in the upper reaches. Entrenchment (down cutting) of the channel varies from 2'-6' deep in the lower reaches. The steeper, more confined areas in the upper reaches are much less entrenched.

There is an existing dirt road (18-8-35.2) that parallels the main stem channel in the lower reaches. The road is generally 50'- 150' from the stream channel. This road was improved for access for fire suppression. There are a few areas where fill was side cast off the road.

A culvert/road failure is located at a former stream crossing located upstream of the existing passable section of road. The stream channel routed itself around a plugged (inlet) culvert through the old road fill. This location now appears to be stable. The culvert poses no further risk of failure and can be left as is. This is unrelated to fire or suppression activity.

Appendix 1

There is evidence of an old debris flow located on gentler topography on Federal land just south of the property line. Sediment deposition and a large accumulation of wood are located here. The channel has since rerouted itself around this location. There is generally low to moderate amount of large woody debris located in the rest of the channel above and below this location.

The combination of steep slopes, moderate to highly erosive soils, and a high intensity burn in young stands located on virtually all the headwater areas indicate that this drainage would be a very high risk for increased erosion and sedimentation in the next few years.

There is a stream crossing located at the lower road (C- line) south of the burned area. A 34" X 49.5" arch pipe is at this location. The inlet is free of debris/sediment. The outlet had about 6" to 9" of fine sediment deposition in the last (outlet side) 5'-10' of pipe at the time of survey (09/02). There is no outlet outfall, and pipe alignment to the channel is good. The outlet is located approximately 250'-300' upstream of Wolf Creek. There is approximately 5'-8' of fill over the pipe. It is estimated that the pipe is capable of passing flows equal to a 25 year to 50-year flood event without impinging on road fill. This pipe is a high risk for sediment/debris plugging for the next few years because it is currently undersized and because of the high risk of increased erosion/sedimentation in the headwater areas.

Drainage Basin # 2 - This drainage basin was also severely impacted by the fire. There is about 50 % mortality of the over story in this basin. Over story mortality was primarily in the upper portion of the basin. The severely burned overstory on Federal land includes area A-2 and portions of A-5. The entire basin is located within the burn area. Most of the rest of the drainage experienced a moderate to intense ground fire. The upper portion of this basin is a mixture of young reproduction stands (Federal and Private), and 30 year to 60-year-old stands. This basin is about 146 acres in size.

Soils in this basin are predominately in the Digger/rock complex, Preacher-Bohannon-Slickrock complex, and Bohannon series. The soils are moderately too highly susceptible to runoff/erosion/sedimentation.

Topography is moderate to very steep. The valley bottom is moderately confined below the mainstream forks and is confined and V-shaped in the upper tributaries.

The main stem channel of the basin is a 3rd order stream that drains south to southeast to Wolf Creek. Bank full width in the main stem is 6'-10'. Substrate is gravel/cobble with some boulder. The main stem is slightly down cut (1'-2 ½ '). The riparian area is alder dominated. The riparian over story is largely unchanged in section 35 while it is significantly altered in section 26. There is a low to moderate amount of large woody debris in the channel.

Appendix 1

The lower road (C- line) crosses over a 36" concrete culvert at the stream location. There is 7'-10' of fill over this culvert. There is a 3' outfall at the outlet of the pipe. The outlet of the pipe is about 50' from Wolf Creek. It is estimated that this pipe is capable of passing flows equal to approximately a 25-year flood event without impinging on road fill. This pipe is a high risk for sediment/debris plugging for the next few years because it is currently undersized and because of the high risk of increased erosion/sedimentation in the headwater areas.

Drainage Basin # 3- This drainage basin is about 100 acres in size. Over story mortality in this basin is estimated at about 20 %. Most of the mortality is located along the ridgeline that borders drainage basin # 4, and in the young, private, reproduction stand located along the east boundary of the drainage. Much of the drainage did experience moderate to high intensity ground fire, some of which burned close to the channel. The Federal land includes areas C-3 and a portion of B-3. Two-thirds of the basin is on private property.

Side slopes are generally steep and rocky. Soils are predominately the Preacher-Bohannon-Slickrock Complex and the Digger/rock complex.

The main channel is a 3rd order stream that drains southwest to the Siuslaw River. Substrate is gravel/cobble with moderate to large boulders. Bank full width is 7'-12' on the main channel. Channel is confined on the lower reach because of entrenchment (3'-6' deep) but otherwise has moderate valley confinement. Channel gradient is 10 % to 18 % on lower reaches and moderate to very steep in upper reaches. Upper reaches are generally confined, not entrenched, and quite steep.

Most of the over story in the riparian areas was minimally affected by the fire. There are areas of "green" under story riparian. The riparian area on the main channel is alder dominated in the lower reaches and mixed over story in the upper reaches. Mature conifers dominate the riparian area of the tributaries in the southeast corner of the drainage.

The lower road (BLM # 18-8-34) crosses over a 36" concrete culvert at the stream location. There is about 1 ½ ' of fill over this culvert. The outlet of the pipe is about 75' from the Siuslaw River. It is estimated that this pipe is capable of passing flows equal to approximately a 50 to 100 year flood event without impinging on road fill. This pipe is a moderate risk for sediment/debris plugging for the next few years because of the high risk of increased erosion/sedimentation potential in some of the basin.

Drainage Basin # 4- This drainage basin is about 52 acres in size. The entire basin is within the burn area. Over story mortality is estimated about 60 %. The upper half of the basin is a young reproduction stand on private ownership that was totally consumed. The lower half of the basin is federal land that experienced little over story mortality but moderate to high intensity ground fire. The Federal land includes portions of area B-1.

Appendix 1

The lower reaches of the basin are surrounded by gentle to moderately steep topography. Moderate to steep topography surrounds the upper reaches of the basin. Soil series in the basin are predominately Digger/rock complex, Bohannon, and Meda.

This channel is a 1st order stream that drains southwest to the Siuslaw River. Substrate is gravel/cobble with small boulders. Overstory is a conifer/hardwood mix. Approximately 250' above the lower road there is an area where the channel splits for few hundred feet. The south channel has vertical banks that are unstable. The north channel is the wider channel with moderate to steep banks. There is a portion of this north channel below the upper main channel that has subsurface flow for approximately 100'.

Stream gradients are generally 10 % to 20 % in the lower reaches and > 20 % in the upper reaches. Stream channel is generally confined to moderately confined.

The lower road (BLM # 18-8-34) crosses over a 12" concrete culvert at the stream location. There is about 3' of fill over this culvert. The outlet of the pipe is about 30' from the Siuslaw River. This pipe is very undersized for the expected stream flows. This pipe is a very high risk for sediment/debris plugging for the next few years because it is very undersized for this location and because of the increased erosion/sedimentation potential in some of the basin. The minimum pipe size for this site is a 30" cmp. The recommended pipe size is 36"-42" cmp.

Drainage Basin # 5 - This basin is 164 acres in size. Approximately 30 % of the basin is within the burned area. Most of the unburned upper part of the basin is BLM ownership. Ownership within the burned area is about 50 % private, 50 % federal. Over story mortality is estimated at less than 10 % of this basin. . Over story mortality occurred in mature trees on BLM land (area C2) and in a pole sized stand on Roseburg Resource land. The rest of the Federal land is in areas B-2 and B-5.

Topography in the burned area is moderate to moderately steep. Soils within the burned area of this basin are predominately Bohannon and Digger/Rock complex.

This channel is a 3rd order stream that drains south to southwest to Wolf Creek. Substrate is gravel/cobble. Bank full width is 6'-12' on the main channel. Stream gradients in the burned area are generally 4 % - 12 %.

The lower road (C- line) crosses over a 36" concrete culvert and 36" cmp at the stream location. These pipes are a low to moderate risk for sediment/debris plugging for the next few years.

Drainage Basin # 6- Over story mortality occurred on an estimated 20 % - 25 % of this basin. The drainage area is estimated at 35 acres. This entire basin is BLM ownership and most of the basin is within the burned area. Over story mortality occurred in mature trees on BLM land (area C4) and in a pole sized stand on Roseburg Resource land.

Appendix 1

The entire basin is on steep topography. The main soil series in the basin is the Preacher-Bohannon-Slickrock complex.

The main channel is a 2nd order stream that drains southeast to Wolf Creek. Stream gradients are steep and the channels are confined.

The lower road (C-line) crosses over a 28" plastic culvert. This pipe is adequately sized for a 100-year flow event under normal conditions. This pipe is a moderate risk for sediment/debris plugging for the next few years due to the increased erosion/sedimentation potential in some of the basin.

Drainage Basin # 7- This basin is about 50 acres in size. Approximately 35 % of the basin was within the burn area. All but a few acres of this basin is located on private property. Over story mortality occurred on a very small percentage of the basin. Under story burn intensity was moderate.

The main channel is a 2nd order stream that drains north to northeast to Big Canyon Creek. Topography is moderately steep to very steep. The channels are confined to moderately confined and the gradients are steep.

Drainage Basin # 8- This basin is about 24 acres in size. The entire basin is within the burn area and all is on Federal land. Over story mortality occurred on about 14 acres (portion of area A-1) or about 60 % of the basin. The mortality occurred in a stand about 50 years old on steep to very steep topography. The rest of the basin experienced a moderate to intense ground fire. The rest of the Federal land is in area B-1.

The lower half of the basin is gentle to moderate topography. The upper half of the basin is moderately steep to very steep. A large percentage (approximately 65 %) of the basin is classified as fragile land due to soil moisture deficiencies (TPCC class FSNW). This is primarily due to soils that are extremely gravelly and/or shallow.

The stream channel is a 1st order stream that drains south toward the Siuslaw River. Channel characteristics are weak near the lower portion of the basin on the gentle topography. No outlet channel could be located near the lower road or at the Siuslaw River. The channel is confined in the upper reaches and moderately confined in the lower reaches. Substrate is generally gravel to coarser material.

Drainage Basin # 9- This basin is about 25 acres in size. Approximately 70 % of the basin was within the burned area. The entire basin is located on Federal land. Over story mortality (portion of area B-3) appears to have occurred on less than 10 % of the basin.

The stream channel is a 1st order stream that drains west toward the Siuslaw River. Bank full width is 3'-5'. The channel is confined and slightly entrenched. The area has steep side slopes and the canyon is V- shaped. The south side of the stream is unburned and

Appendix 1

the north side of the stream experienced a moderate under burn. The riparian zone is green and was only slightly impacted by the burn. The riparian area is alder dominated. The substrate is gravel/cobble with some boulder. There is no culvert where the stream meets the county road. Flow is diverted down the ditch line towards the next stream crossing to the south.

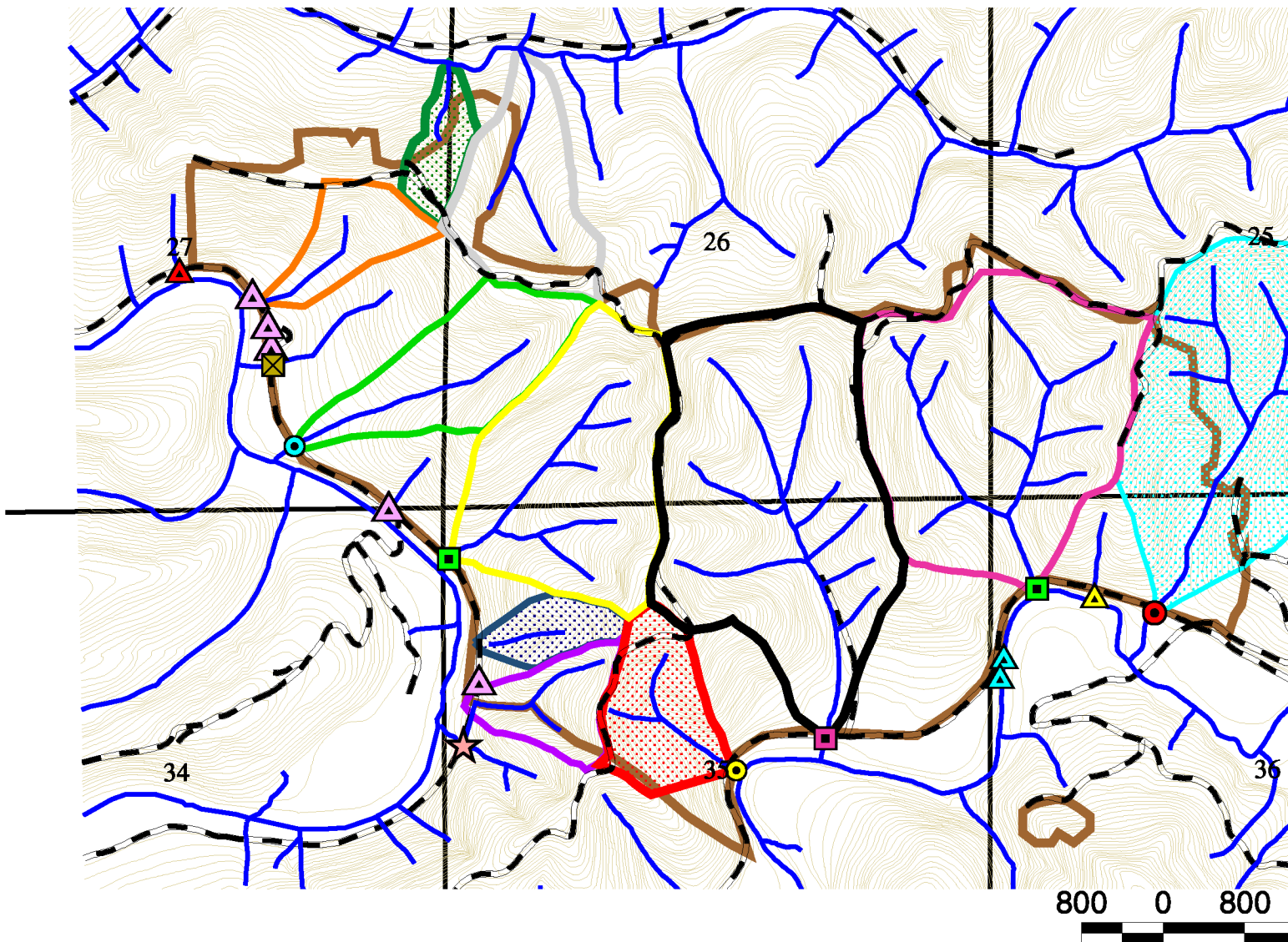
The fire line (hand line) is in close proximity to the stream to utilizing the actual streambed. Various lengths of cut alder stems were left in the stream channel from the construction of the fire line. The rest of the fire line was constructed from the main channel to the ridgeline via a dry draw.

Drainage Basin # 10- This basin is about 16 acres in size. The entire basin was within the burned area. The entire basin is located on Federal land. Over story mortality (portion of area B-3) appears to have occurred on less than 10 % of the basin. The understory burned at moderate to high fire intensity. There are some green areas in the riparian but there are also areas where the fire burned to the channel edge. The south side of the channel generally burned hotter.

The stream channel is a 1st order intermittent stream that drains west toward the Siuslaw River. Channel characteristics are indistinct near the lower road- channel appears to go subsurface. No definable channel at the road or near the Siuslaw River. Upstream the channel is well defined. Bank full width is 2'-5'. The substrate is gravel/cobble with areas of boulder. Stream gradient is moderately steep to very steep. Topography is also generally steep. The valley bottom is generally V-shaped. Channel characteristics are weak near the lower portion of the basin on the gentle topography. No outlet channel could be located near the lower road or at the Siuslaw River.

Drainage Basin # 11- Over story mortality in this basin appears to be very low. Approximately two-thirds of the basin is in the burned area. The west half of the basin (portion of area B-4) is federal ownership and the east half is private ownership. The basin is about 15 acres in size. The understory burned at moderate intensity.

The stream channel is a small 1st order intermittent stream that drains north toward Big Canyon Creek. The basin is moderately steep to steep. The stream channel is confined to moderately confined. Stream gradients are moderately steep to steep.



SIUSLAW RIVER FIRE - DRAINAGE MAP



18" concrete culvert- stream crossing
 18" plastic cross drain
 12" concrete culvert- stream xing
 Stream crossing- Size?
 12" concrete cross drain
 28" plastic pipe- stream crossing
 Pipe arch- 34" X 49.5"
 16" concrete cross drain
 36" concrete culvert- stream crossing

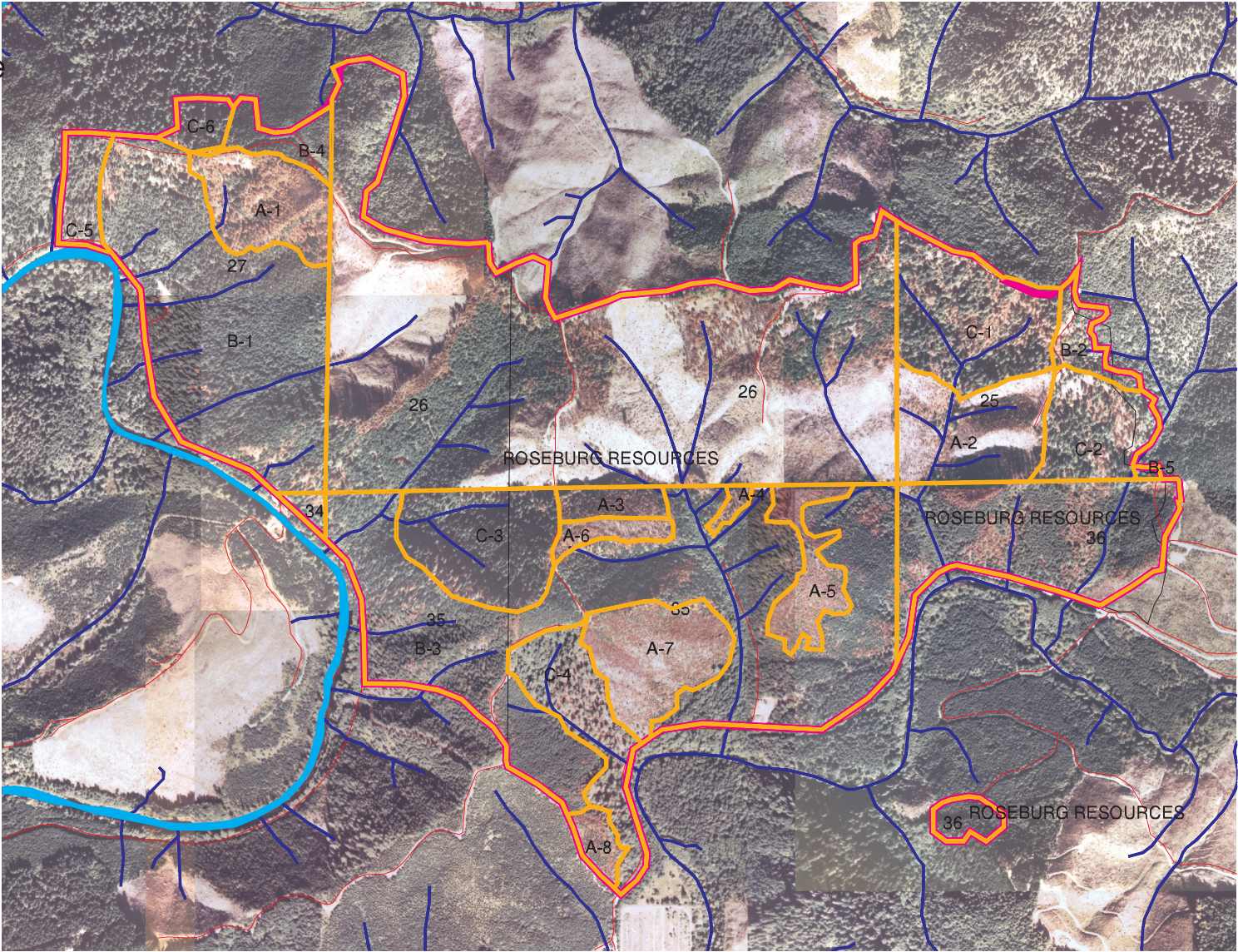


18" concrete culvert
 Pvt. 36" cmp/36" concrete pipes- stream crossing
 Streams
 Roads
 Drainage # 1
 Drainage # 2
 Drainage # 3
 Drainage # 4
 Drainage # 5



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Siuslaw River Fire
Rehab Areas

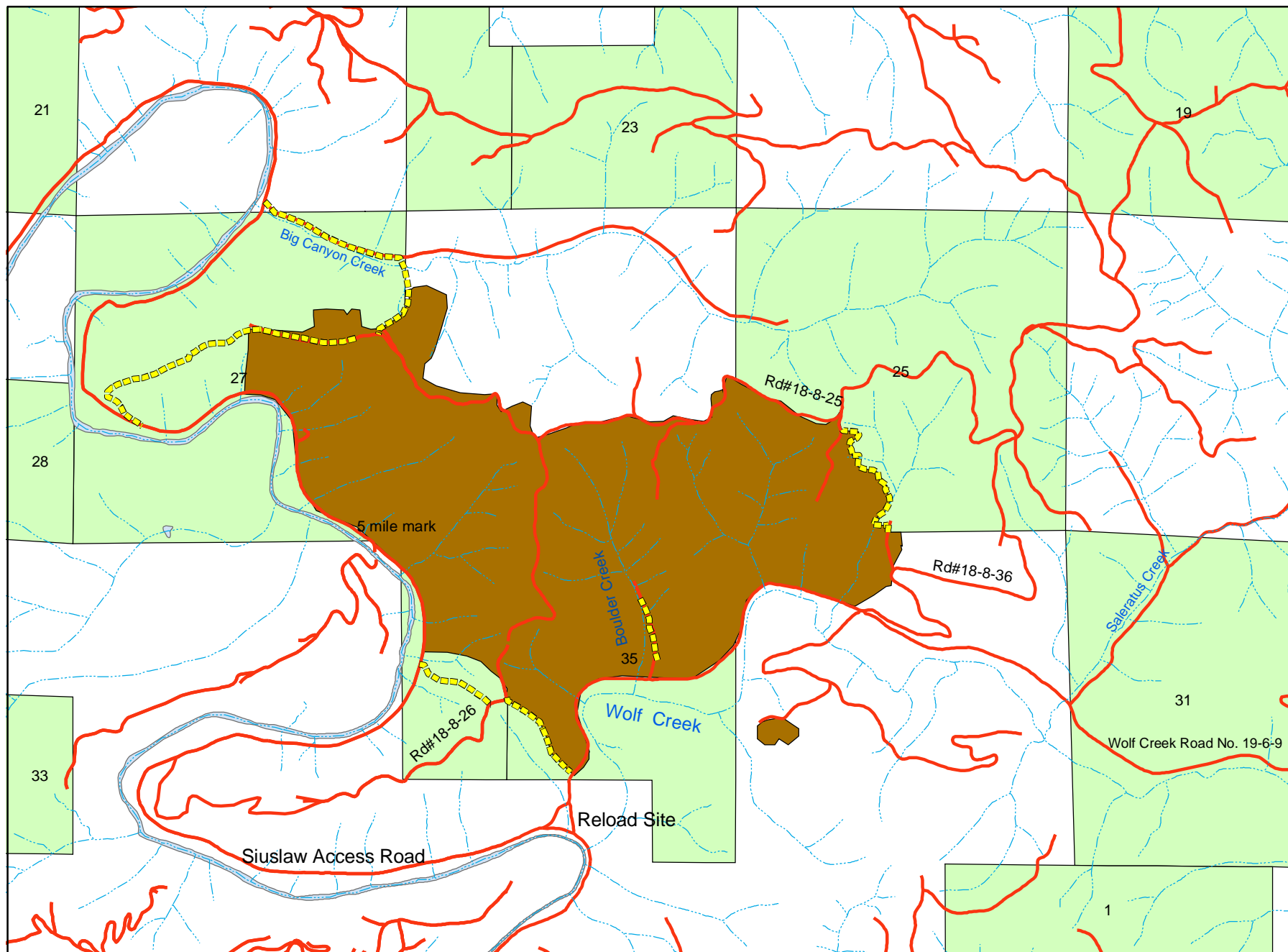


R. 8 W.

- roads
- streams
- fire boundary
- treatment areas

Scale 1:18000

T. 18 S.



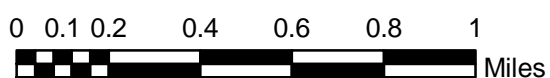
T18S,R08W



Location and Access Map

Siuslaw River Fire 2002

860 acres



Legend

- streams
- road network
- Siuslaw River fire 02
- lakes and ponds
- BLM managed lands
- fire trails and cat roads to rehad